

These programme regulations should be read in conjunction with the University's [core regulations for postgraduate programmes](#), and the [marking and classification conventions for postgraduate programmes](#)

MSc Mathematical Sciences (G1K509)

1. Location: Durham City
2. Duration: 12 months (full-time)

Programme structure

3. Candidates shall study and be assessed in the following module:

		Credit value
Dissertation	MATH51460	60

4. Candidates shall also study and be assessed in modules to the value of 120 credits from either **List A (Pure Mathematics)**, **List B (Probability)**, **List C (Applied Mathematics and Mathematical Physics)**, or **List D (Mathematical Finance)**. Please note excluded combinations under item 6.

		Credit value
List A (Pure Mathematics)		
Algebraic Topology	MATH41120	20
Analysis	MATH41220	20
Ergodic Theory	MATH43320	20
Functional Analysis and Applications	MATH42920	20
Geometry	MATH41920	20
Number Theory	MATH41620	20
Partial Differential Equations	MATH41720	20
Representation Theory	MATH42220	20
Riemannian Geometry	MATH41320	20
Topics in Algebra and Geometry	MATH41520	20
Topics in Combinatorics	MATH43920	20
List B (Probability)		
Advanced Probability	MATH44320	20
Stochastic Processes	MATH43020	20
Stochastic Analysis	MATH43720	20
Topics in Combinatorics	MATH43920	20
Ergodic Theory	MATH43320	20
Partial Differential Equations	MATH41720	20
Analysis	MATH41220	20
Functional Analysis and Applications	MATH42920	20
List C (Applied Mathematics and Mathematical Physics)		
Advanced Quantum Theory	MATH41020	20
Analysis	MATH41220	20
Functional Analysis and Applications	MATH42920	20
General Relativity	MATH40820	20
Partial Differential Equations	MATH41720	20
Riemannian Geometry	MATH41320	20
Solitons	MATH41420	20
Statistical Mechanics	MATH42320	20
Superstrings	MATH43820	20
Advanced Mathematical Biology	MATH44020	20
Geophysical and Astrophysical Fluids	MATH44120	20

List D (Financial Mathematics)

Stochastic Analysis	MATH43720	20
Stochastic Processes	MATH43020	20
Mathematical Finance	MATH40920	20
Partial Differential Equations	MATH41720	20
Advanced Probability	MATH44320	20
Analysis	MATH41220	20
Functional Analysis and Applications	MATH42920	20

5. Candidates in the **List A (Pure Mathematics)** pathway may replace up to 20 credits with modules from **List E**. Candidates in the **List B (Probability)** pathway may replace up to 20 credits with modules from **List F**. Candidates in the **List C (Mathematical Physics)** pathway may replace up to 20 credits with modules from **List G**. Candidates in the **List D (Mathematical Finance)** pathway may replace up to 20 credits with modules from **List H**.

Credit value

List E (Pure Mathematics - Additional Modules)

Cryptography and Codes	MATH30120	20
Differential Geometry	MATH30320	20
Galois Theory	MATH30420	20
Geometric Topology	MATH33020	20

List F (Probability - Additional Modules)

Decision Theory	MATH30220	20
Operations Research	MATH30820	20

List G (Applied Mathematics and Mathematical Physics - Additional Modules)

Differential Geometry	MATH30320	20
Dynamical Systems	MATH30720	20
Geometry of Mathematical Physics	MATH31220	20
Mathematical Biology	MATH30920	20
Quantum Mechanics	MATH31120	20
Fluid Mechanics	MATH31620	20

List H (Financial Mathematics - Additional Modules)

Decision Theory	MATH30220	20
Operations Research	MATH30820	20

6. The following module combinations are excluded in all pathways:
- Analysis MATH 41220 AND Functional Analysis and Applications MATH 42920
 - Analysis MATH 41220 AND Ergodic Theory MATH 43320
 - Geometric Topology MATH 33020 AND Algebraic Topology MATH 41120
 - Differential Geometry MATH 30320 AND Riemannian Geometry MATH 41320
 - Quantum Mechanics MATH 31120 AND Advanced Quantum Theory MATH 41020
 - Geometry of Mathematical Physics MATH 31220 AND Advanced Quantum Theory MATH 41020
 - Geophysical and Astrophysical Fluids MATH 44120 AND Fluid Mechanics MATH 41820
 - Advanced Mathematical Biology MATH 44020 AND Mathematical Biology MATH 30920
7. It may be possible to combine modules from different lists, subject to timetable compatibility (note that modules within each list are guaranteed to be timetable compatible) and approval from the Programme Director.

Assessment, Progression and Award

8. The prerequisite for MATH 51460 is 80 credits of MATH Level 4 modules, as given in lists A, B, C, and D. Candidates must satisfy the prerequisite for MATH 51460; if this is not achieved they cannot be enrolled on this module and will therefore not be eligible for an MSc, although they may qualify

for a Postgraduate Diploma or Postgraduate Certificate, possibly subsequent to resits, as appropriate.

9. For the award of a Postgraduate Diploma candidates must gain a total of 120 credits.
10. For the award of a Postgraduate Certificate candidates must gain a total of 60 credits.